

TeSys

TeSys Ultra ASILUFC5 - ASILUFC51 AS-i Communication Module

User Guide

TeSys offers innovative and connected solutions for motor starters.

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Table of Contents

Safety Information.....	5
About the Book.....	6
Hardware Implementation	8
Description and Installation	9
Connections.....	13
Technical Characteristics	16
Software Implementation.....	17
Configuration Software	18
Addressing.....	20
Description of the I/O Variables on the ASILUFC5/ASILUFC51 Module	21
Troubleshooting	22

Safety Information

Important Information

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

About the Book

TeSys Master Range

TeSys is an innovative motor control and management solution from the global market leader. TeSys offers connected, efficient products and solutions for switching and protection of motors and electrical loads in compliance with all major global electrical standards.

Document Scope

This guide describes the implementation, functionalities and operation of the TeSys Ultra AS-i communication module (ASILUFC5 or extended ASILUFC51).

Field of application: mainly automation systems in industry and building areas.

Validity Note

ASILUFC5 and ASILUFC51 can be used with TeSys Ultra power bases (LUB/2B) only.

ASILUFC5 and ASILUFC51 are not compatible with TeSys Ultra controller bases.

Related Documents

Title of Documentation	Reference Number
<i>ASILUF• Communication Module - Instruction Sheet</i>	1743239
<i>TeSys Ultra Communication Variables - User Guide</i>	1744082_01A55 (FR) 1744082_02A55 (EN) 1744082_03A55 (DE) 1744082_04A55 (ES) 1744082_05A55 (IT)
<i>LU•B/LU•S• Starters - Instruction Sheet</i>	1629984
<i>LUCM Multifunction Control Units - User Manual</i>	1743237
<i>LUCA/LUCB/LUCC/LUCD Control Units - Instruction Sheet</i>	AAV40503
<i>Modicon X80 Module Bus AS-Interface BMXEIA0100 – User Guide</i>	EIO0000000138 (EN) EIO0000000139 (FR) EIO0000000140 (DE) EIO0000000141 (ES) EIO0000000142 (IT) EIO0000000143 (ZH)

You can download these technical publications and other technical information from our website at www.se.com/ww/en/download/ .

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As a responsible, inclusive company, Schneider Electric is constantly updating its communications and products that contain non-inclusive or insensitive terminology. However, despite these efforts, our content may still contain terms that are deemed inappropriate by some customers.

Hardware Implementation

What's in This Part

Description and Installation	9
Connections	13
Technical Characteristics	16

Overview

This part describes the installation and technical characteristics of a TeSys Ultra AS-i communication module (ASILUFC5 or extended ASILUFC51).

Description and Installation

Introduction

The AS-i ASILUFC5 or extended ASILUFC51 communication module connects the TeSys Ultra starters-controllers to the AS-i wiring system for direct or remote control.

The different operation conditions of the AS-i ASILUFC5 or ASILUFC51 AS-i communication module (AS-i bus voltage presence, communication error on AS-i bus, incorrect addressing, ...) are displayed on the front panel by two light-emitting diodes (green and red).

Module operation is continuously monitored by self-tests. This is totally transparent to the user.

The integration of AS-i V2 functions enables remote module diagnostics via the bus or local diagnostics via the ASITERV2 and XZMC11 addressing terminals.

The module must be supplied with a 24 Vdc auxiliary source and must only be used with the LUC•BL 24 Vdc control units.

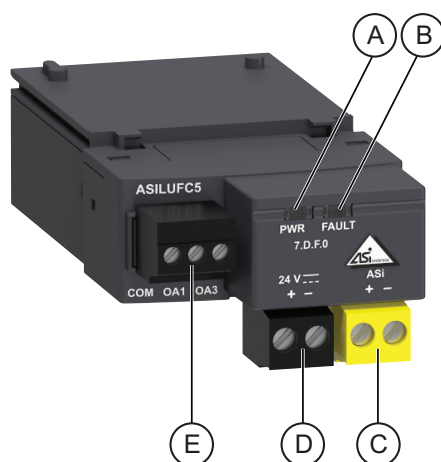
⚠ WARNING

IMPROPER COMMUNICATION PORT USAGE

- Use communication ports for transfer of non-critical data only.
- The data provided by monitoring contactor status and current levels is delayed by transmission time. Do not use this data for critical control decisions.
- Verify function settings before starting the motor.
- Do not use functions such as Run, Stop and Reverse for emergency or critical control applications.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Description



- A. PWR LED for AS-i bus voltage presence
- B. FAULT LED for bus or module malfunction
- C. Yellow AS-i bus connector
- D. Black 24 Vdc auxiliary connector
- E. Output to control the starter

LED Description

Description of ASILUFC5 or ASILUFC51 different states of LEDs.

Light Emitting Diodes (LEDs)	Status	Meaning
PWR LED	Green on	AS-i bus voltage present
	Off	No AS-i bus voltage
FAULT LED	Red on	No exchange with the Client (Communication interruption on c bus)
		Incorrect addressing (address is factory-set to 0)
	Red flashing	No 24 Vdc auxiliary voltage
		Motor feed engaged in the TRIP position
	Off	AS-i module operational

Installation

NOTICE

PRESENCE OF ELECTROSTATIC SENSITIVE DEVICES

Observe precautions for handling electrostatic sensitive devices before installing the communication module.

Failure to follow these instructions can result in equipment damage.

The AS-i ASILUFC5 or ASILUFC51 communication module is easily installed in the power base (LUB•• or LU2B••) under the LUC••BL control unit that locks it into position.

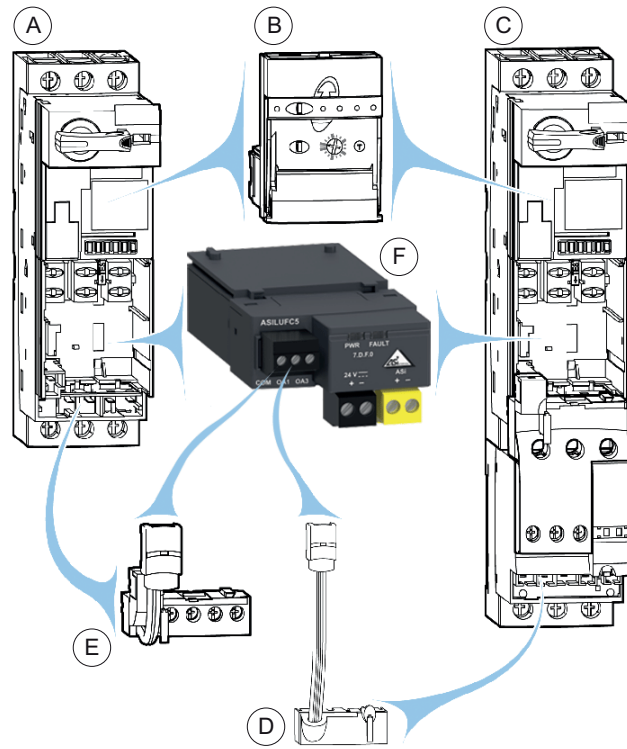
Carry out the assembly in the following order:

1. Install the ASILUFC5 or ASILUFC51 module.
2. Install the LUC••BL control unit.

NOTE: The control unit voltage must be 24 Vdc.

3. The output control connector can be connected by wire using LUBN11C cable (for LUB••) or LU9MR1C cable (for LU2B••).

NOTE: Direct wiring can be used, for example, to insert external stop control or a voltage interface

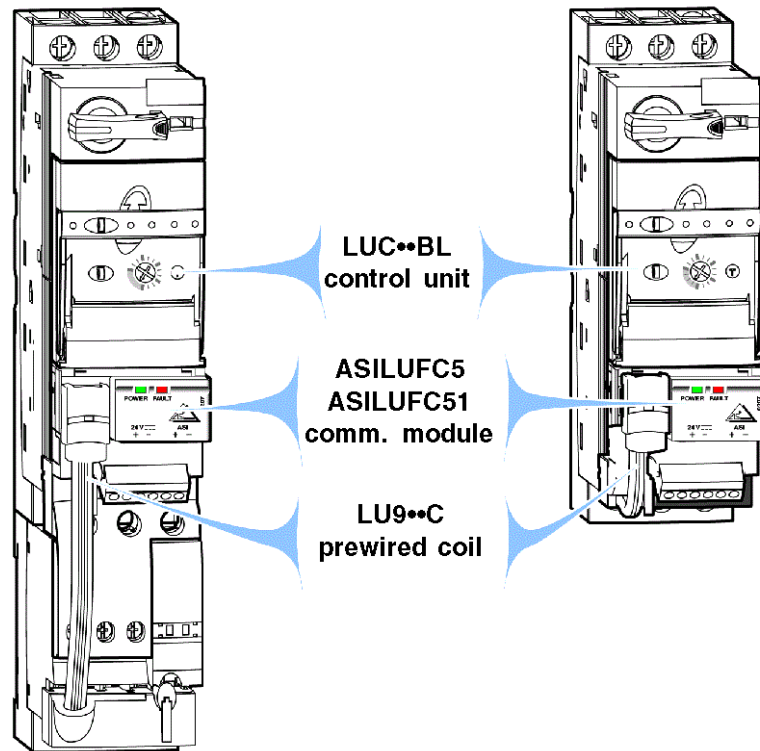


- A. LUB••
- B. LUC••BL
- C. LU2B••
- D. LU9MR1C
- E. LU9BN11C
- F. ASILUFC5 /ASILUFC51

Power bases with all components installed:

**Assembled module
LU2B****

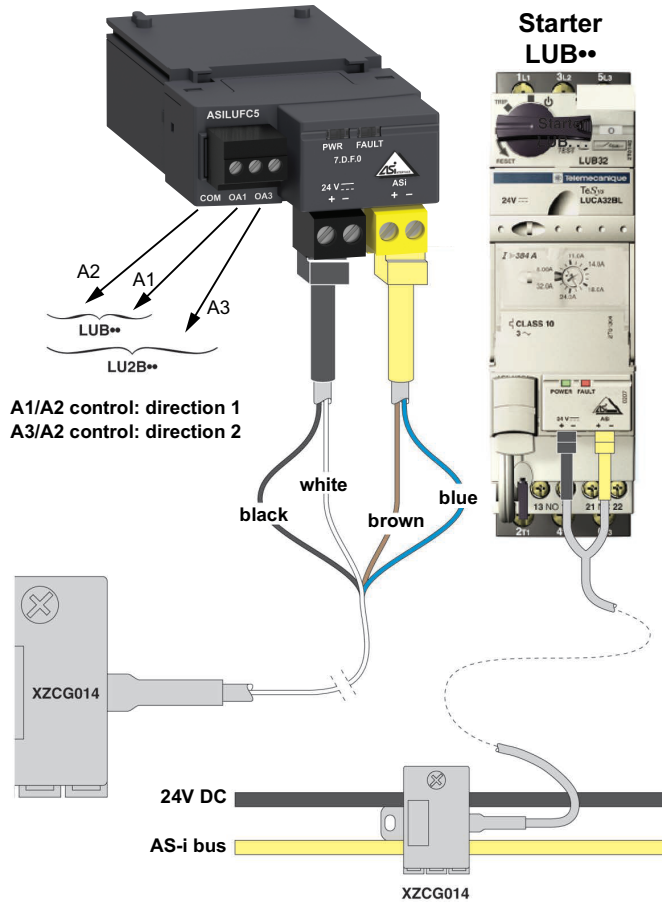
**Assembled module
LUB****



Connections

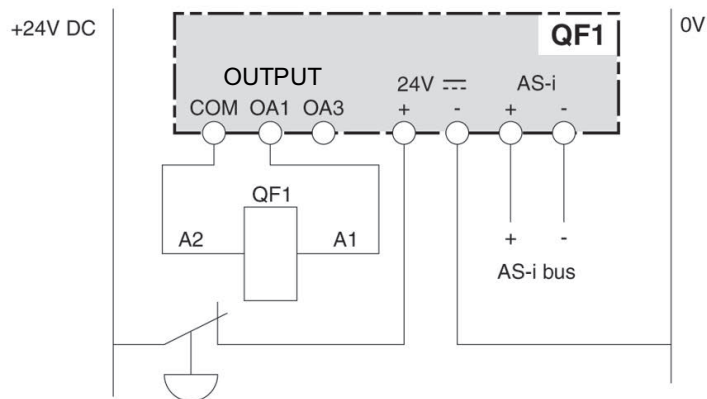
Electrical Connections

The connections to the AS-i bus and auxiliary 24 Vdc are made using XZCG** connecting accessories.

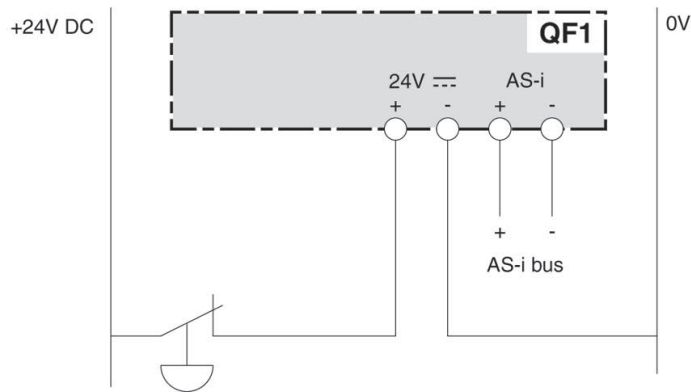


Examples of Application Diagrams

Example 1: Control by AS-i communication module without coil pre-wiring and with main emergency stop.

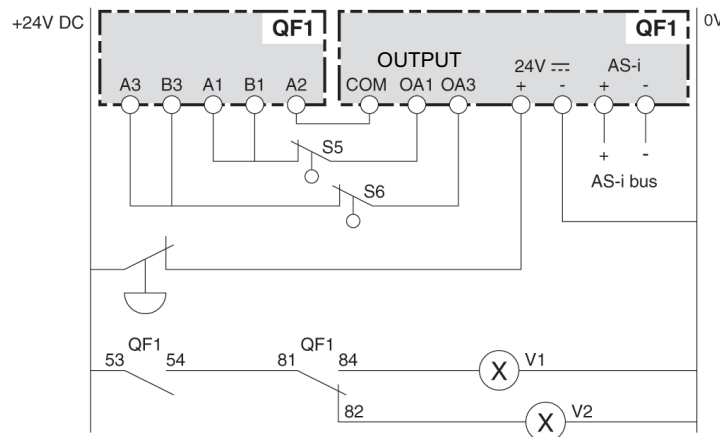


Example 2: Control by AS-i communication module with coil pre-wiring and main emergency stop.



Example 3: Control by AS-i communication module without coil pre-wiring and with main emergency stop and indicating lights for:

- operating direction
- upper and lower level end stops



Connection Capacities

The following table shows the conductor cross-sections that may be used on ASILUFC5 / ASILUFC51 terminals:

Connection	Conductor type	AS-i / 24V aux Conductor Cross-section (min. - max.)	Control / Monitor Conductor Cross-section (min. - max.)
One conductor	Rigid conductor	0.2 - 1.5 mm ² (24 - 16 AWG)	0.14 - 1 mm ² (26 - 18 AWG)
	Flexible conductor	0.2 - 1.5 mm ² (24 - 16 AWG)	0.14 - 1 mm ² (26 - 18 AWG)
	Flexible conductor with cable end without an insulating inlet taper	0.25 - 1.5 mm ² (24 - 16 AWG)	0.25 - 1.0 mm ² (24 - 18 AWG)
	Flexible conductor with cable end with an insulating inlet taper	0.25 - 1.5 mm ² (24 - 16 AWG)	0.25 - 0.5 mm ² (24 - 20 AWG)
Two conductors (same cross-section)	Two rigid conductors	0.2 - 1.0 mm ² (24 - 18 AWG)	0.14 - 0.5 mm ² (26 - 20 AWG)
	Two flexible conductors	0.2 - 1.0 mm ² (24 - 18 AWG)	0.14 - 0.75 mm ² (26 - 20 AWG)
	Two flexible conductors with cable end without an insulating inlet taper	0.25 - 1.0 mm ² (24 - 18 AWG)	0.25 - 0.34 mm ² (24 - 22 AWG)
	Two flexible conductors with cable end with an insulating inlet taper	0.5 - 1.5 mm ² (20 - 16 AWG)	0.5 mm ² (20 AWG)

Connectors	2 pins	3 pins
Pitch	5.08 mm [0.20 in.]	3.81 mm [0.15 in.]

Tightening torque	0.5 - 0.6 N.m.	[0.5 - 0.6 N.m.]
	[4.4 - 5.3 lb-in]	[4.4 - 5.3 lb-in]
Flat screwdriver	3.5 mm [0.14 in.]	2.5 mm [0.10 in.]

Technical Characteristics

NOTICE

HAZARD OF EQUIPMENT DAMAGE

This device must be installed, configured and used by staff protected against electrostatic discharges (ESD).

Failure to follow these instructions can result in equipment damage.

AS-i Module

Characteristic	Standard	Value
Protection class	IEC 60539	IP20
Immunity to fast transients	IEC 61000-4-4 / EN 61000-4-4 level 4	2 kV

Power Supplies

Power supply	Voltage	Current consumed
AS-i power supply	26.5 V - 31.6 V	On AS-i bus: <ul style="list-style-type: none"> • 25 mA in normal operation. • 30 mA maximum.
Auxiliary power supply	24 Vdc +/- 30%	On 24 V auxiliary: <ul style="list-style-type: none"> • Depends on the load connected to the outputs. • Limited to 500 mA
Relay output rating Short-circuit and overload protected	0.5 A / 24 V	-

Software Implementation

What's in This Part

Configuration Software	18
Addressing	20
Description of the I/O Variables on the ASILUFC5/ASILUFC51 Module	21
Troubleshooting	22

Overview

Hardware implementation of an ASILUFC5 / ASILUFC51 AS-i communication module is being followed by its software implementation.

Configuration Software

AS-i Communication Module and EcoStruxure Control Expert Software

The AS-i communication module is configured with EcoStruxure Control Expert software.

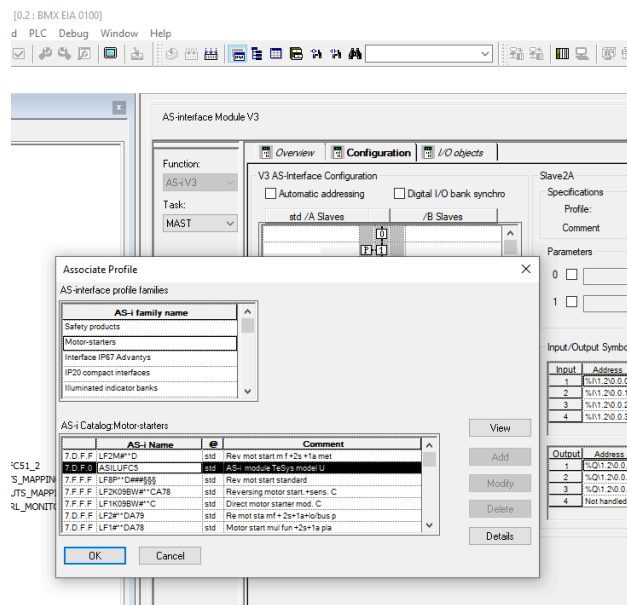
All the server equipment corresponding to all the inputs/outputs of the AS-i bus can be configured from the PLC interface declaration screen.

Used with the Client PLC interface BMXEIA0100.

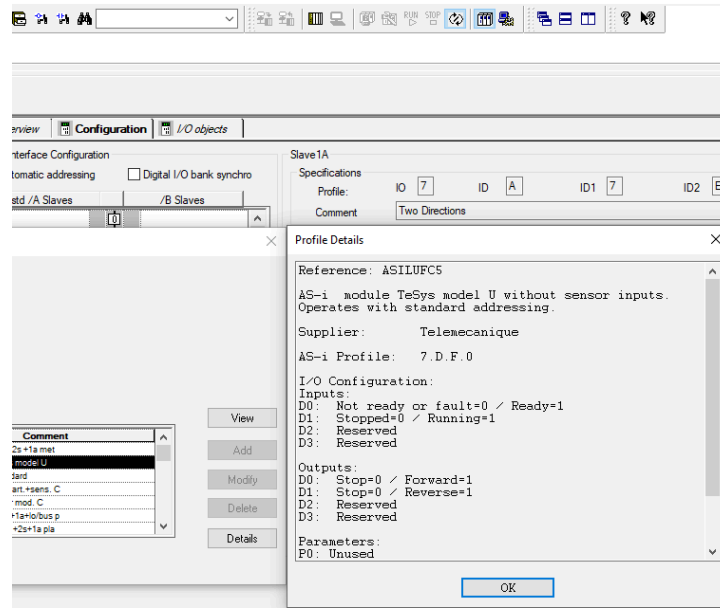
The 7.D.F.0 motor start profile limits the configuration to 31 server devices as a maximum. In fact, an ASILUFC5 / ASILUFC51 module occupies the 2 addresses of banks A and B. The 7.A.7.E motor start profile limits the configuration to 62 server devices as a maximum.

Configuration Example with EcoStruxure Control Expert

Configuration example: step 1



Configuration example: step 2

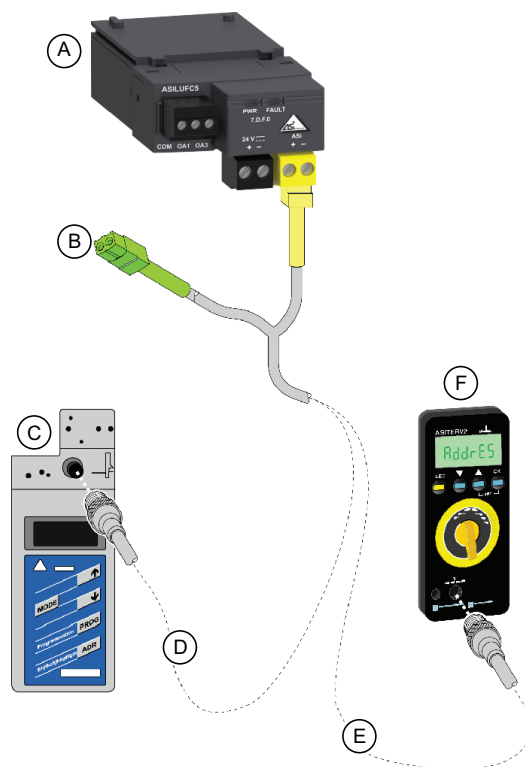


Addressing

Description of Addressing

Here is a view of the links with an addressing terminal, which can be of two different types:

- referenced as ASITERV2,
- referenced as XZMC11.



- A. ASILUFC5 /ASILUFC51
- B. Connector (not used)
- C. Addressing terminal XZMC11
- D. XZMG12 cable
- E. XZMG12 cable
- F. Addressing terminal ASITERV2

Description of the I/O Variables on the ASILUFC5/ ASILUFC51 Module

AS-i Profiles

The current consumed on the AS-i bus is typically 15 mA.

The following table describes the input and output variables associated with the following AS-i profiles:

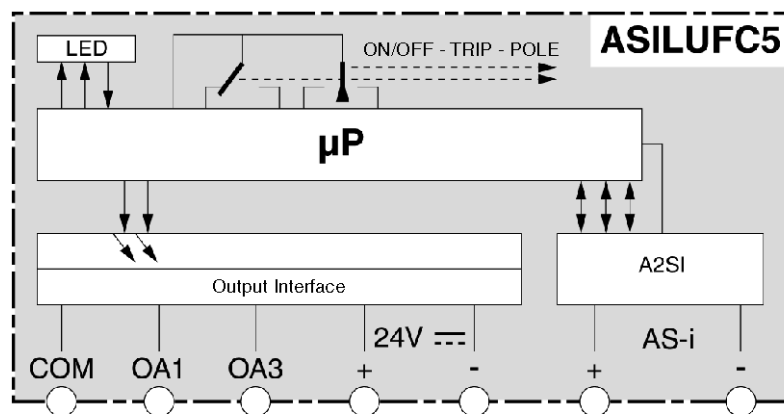
- 7.D.F.0 for ASILUFC5
- 7.A.7.E for ASILUFC51

Bit value		= 0	= 1
Data bits (commands) (Outputs)	D0	Stop direct direction	Run forward direction
	D1	Stop reverse direction	Run reverse direction
	D2	Reserved	Reserved
	D3	Reserved	Reserved
Data bits (status) (Inputs)	D0	Not ready or not operational	Ready
	D1	Stopped	Running
	D2	Reserved	Reserved
	D3	Reserved	Reserved

If D0 and D1 output bits are set to 1 at the same time, the motor stops.

NOTE: The parameter bits are reserved.

Schematic Diagram



The ON, OFF, TRIP and power contact states are transmitted via a mechanical link.

Troubleshooting

LED status	Possible cause	Corrective actions
Green PWR LED off	No AS-i bus voltage	Check the state of the AS-i power supply
		Check the cables and the connecting terminals
		Check the polarity of the power supply wire
Red FAULT LED flashing	No 24 Vdc auxiliary voltage	Check the state of the auxiliary power supply
		Check the cables and connection terminals
		Check the polarity of the power supply wire
	Motor feed engaged in the TRIP position	Remove the cause of the malfunction
Rearm the product		
Red FAULT LED permanently On	No exchange with the Client (Communication interruption on AS-i bus)	Check the connection to the Client
		Check if the Client is set to Run
		Check if the 24 V AS-i and 24 Vdc auxiliary connections are not reversed
	Incorrect addressing (Address factory-set to 0)	Set an address from 1 to 31 (ASILUFC5) or 1 to 62 (ASILUFC51)

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